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## 5.2 AIR QUALITY

### 5.2.1 Setting

#### 5.2.1.1 Climate and Meteorology

Coastal San Luis Obispo County is characterized by mild weather throughout the year. Due to its location near the coast, the Pacific Ocean plays a key role in moderating temperatures. Summers are mild and often characterized by early morning and afternoon fogs. Winters are usually cool and wet with the rainy season extending from late November to early April.

The nearest climatic data station to the project site is in the City of San Luis Obispo. The minimum average temperature recorded at the San Luis Obispo station from 1950 to 1980 is 41.7 degrees Fahrenheit in January. The maximum average temperature is 78.7 degrees Fahrenheit in September for the same period. The average annual rainfall, recorded from 1950 to 1980, is 23.00 inches at San Luis Obispo.

Existing air quality data provided in Table 5.2-2 and in this section is from the San Luis Obispo station; however, according to the screening-level HRA provided for the proposed project's air stripper towers (included in Appendix D), the San Luis Obispo Air Pollution Control District (APCD) has indicated that neither this station, nor the station located in Grover Beach accurately represent meteorological conditions at the Arroyo Grande Oil Field, due to differences in wind flow. Although it has been previously recommended that a station be installed at this location to obtain more site-specific air quality data, there is not currently one available for this analysis. Thus, data provided by the San Luis Obispo station represents the best available air quality data at this time.

Airflow plays an important role in the movement and dispersion of air pollutants in the San Luis Obispo region. The speed and direction of local winds are controlled by 1) the location and strength of the Pacific High pressure system and other global patterns, 2) topographical factors, and 3) circulation patterns resulting from temperature differences between the land and sea.

During the spring and summer, when the Pacific High attains its greatest strength, onshore winds from the northwest generally prevail during the day. As evening approaches, onshore winds die down, and the wind direction reverses with weak winds flowing down the coastal mountains and valleys to form light easterly breezes.

In the fall, onshore surface winds decline and the marine layer grows shallow, allowing an occasional reversal to a weak offshore flow. This along with the diurnal alteration of land-sea breeze circulation, can sometimes produce a "sloshing" effect. Under such conditions, pollutants may accumulate over the Pacific Ocean and subsequently be carried back onshore with the return of sea breezes.

In the atmosphere, air temperatures normally decrease as altitude increases. At varying distances above the earth's surface, however, a reversal of this temperature gradient can occur. Such a condition, which is called an inversion, is simply a warm layer of air over a layer of cooler air. Inversions can have the effect of limiting the vertical dispersion of air pollutants, trapping them near the earth's surface.

Several types of inversions are common to the San Luis Obispo area. Weak surface inversions are caused by radiational cooling of air in contact with the cold surface of the earth at night. In valleys and low lying areas, this condition is intensified by the addition of cold air flowing down from hills and pooling on valley floors. Surface inversions are common throughout the County during winter months, particularly on cold mornings. As the morning sun warms the earth and air near the ground, the inversion lifts, gradually dissipating throughout the day.

During the summer, subsidence inversions can occur when the summertime presence of the Pacific high pressure cell can cause the air mass aloft to sink. As the air descends, compressional heating warms the air to a higher temperature than the air below. This highly stable atmospheric conditioning can act as a nearly impenetrable lid to the vertical mixing of pollutants. Subsidence inversions can persist for one or more days, causing air stagnation and the buildup of pollutants.

#### 5.2.1.2 Air Pollution Control

Air pollution control is administered on three governmental levels in the project area. The United States Environmental Protection Agency (EPA) has jurisdiction under the Federal Clean Air Act to develop Federal air quality standards and to require individual states to prepare State Implementation Plans to attain these standards.

The California Environmental Protection Agency, Air Resources Board (ARB) has jurisdiction under the California Health and Safety Code and the California Clean Air Act to develop California air quality standards, to require regional plans to attain these standards, and to coordinate the preparation by local air districts of plans required by both the Federal and State Clean Air Acts. ARB is also responsible for the development of state emission standards for mobile and stationary emission sources.

The Air Pollution Control District (APCD) shares responsibility with the ARB for ensuring that all State and Federal ambient air quality standards are attained within the County. The APCD has jurisdiction under the California Health and Safety Code to develop emission standards (rules) for the County, issue air pollution permits, and require emission controls for stationary sources in the County. The APCD is also responsible for the attainment of State and Federal air quality standards in the County.

#### 5.2.1.3 Air Quality Standards

Air quality standards are specific concentrations of pollutants that are used as thresholds to protect public health and the public welfare. The EPA has developed two sets of standards; one to provide an adequate margin of safety to protect human health and the second to protect

the public welfare from any known or anticipated adverse effects. At this time, sulfur dioxide is the only pollutant for which the two standards differ.

ARB has developed air quality standards for California, which are generally lower in concentration than the Federal standards. California standards exist for ozone, carbon monoxide, nitrogen dioxide, $PM_{10}$, visibility, sulfates, lead, hydrogen sulfide and vinyl chloride.

In July 1997, EPA finalized new health-based ozone and particulate matter (PM) standards. However, due to several lawsuits the standards were not fully implemented until February 2001. The new Federal ozone standard is based on a longer averaging period (8-hour vs. 1-hour), recognizing that prolonged exposure is more damaging. The new Federal PM standard is based on finer particles (2.5 microns and smaller vs. 10 microns and smaller), recognizing that finer particles may have a higher residence time in the lungs and cause greater respiratory illness. In 2002, the ARB lowered the annual standards for $PM_{10}$ and $PM_{2.5}$ in response to the Children's Environmental Health Protection Act. Table 5.24-1 lists the applicable State and Federal air quality standards.

**Table 5.2-1. Ambient Air Quality Standards**

| Pollutant | Averaging Time | State Standard | Federal Standard |
|---|---|---|---|
| Ozone | 1-Hour | 0.09 ppm | -- |
| | 8-Hour | 0.07 ppm | 0.08 ppm |
| Carbon Monoxide (CO) | 1-Hour | 20 ppm | 35 ppm |
| | 8-Hour | 9.0 ppm | 9.0 ppm |
| Nitrogen Dioxide ($NO_2$) | 1-Hour | 0.1825 ppm | -- |
| | Annual Avg. | 0.030 ppm | |
| Inhalable Particulate Matter ($PM_{2.5}$) | 24-Hour | -- | 35 ug/m3 |
| | Annual Arithmetic Mean | 12 ug/m3 | 15 ug/m3 |
| Inhalable Particulate Matter ($PM_{10}$) | 24-Hour | 50 ug/m3 | 150 ug/m3 |
| | Annual Arithmetic Mean | 20 ug/m3 | 50 ug/m3 |
| Sulfur Dioxide ($SO_2$) | 1-hour | 0.25 ppm | -- |
| | 24-Hour | 0.04 ppm | 0.14 ppm |

Source: California Air Resources Board (www.arb.ca.gov)

#### 5.2.1.4 Effects of Air Pollution

The primary chemical compounds that are considered pollutants emitted into or formed in the atmosphere include ozone, oxides of nitrogen, sulfur dioxide, hydrocarbons, carbon monoxide, and particulate matter.

Ozone is formed in the atmosphere through a complex series of chemical reactions generally requiring light as an energy source. Ozone is a pungent, colorless gas that is a strong irritant and attacks the respiratory system. Respiratory and cardiovascular diseases are

aggravated by exposure to ozone. A healthy person exposed to high concentrations of ozone may experience nausea, dizziness, and burning in the chest. Ozone also damages crops and other vegetation.

Oxides of nitrogen ($NO_x$) which are considered pollutants include nitric oxide (NO) and nitrogen dioxide ($NO_2$). NO is colorless and odorless and is generally formed by combustion processes combining atmospheric oxygen and nitrogen. $NO_2$ is a reddish-brown irritating gas formed by the combination of NO and oxygen in the atmosphere or at the emission source. Both NO and $NO_2$ are considered ozone precursors because they react with hydrocarbons and oxygen to produce ozone. Exposure to $NO_2$ may increase the potential for respiratory infections in children and cause difficulty in breathing even among healthy persons and especially among asthmatics.

Sulfur dioxide ($SO_2$) is a colorless, pungent, irritating gas which affects the upper respiratory tract. Sulfur dioxide may combine with particulate matter and settle in the lungs, causing damage to lung tissues. Sulfur dioxide may combine with water in the atmosphere to form sulfuric acid that may fall as acid rain, damaging vegetation.

Hydrocarbons include a wide variety of compounds containing hydrogen and carbon. Many hydrocarbons (known as reactive organic gases [ROG]) react with NO and $NO_2$ to form ozone. Generally, ambient hydrocarbon concentrations do not cause adverse health effects directly, but result in ozone formation.

Carbon monoxide (CO) is a colorless, odorless gas generally formed by incomplete combustion of hydrocarbon-containing fuels. Carbon monoxide does not irritate the respiratory tract, but does interfere with the ability of blood to carry oxygen to vital tissues.

Particulate matter consists of a wide variety of particle sizes and composition. Generally, particles less than 10 microns ($PM_{10}$) are considered to be pollutants because they accumulate in the lung tissues and may contain toxic materials which can be absorbed into the system.

#### 5.2.1.5 Baseline Air Quality

In January 2004, the San Luis Obispo County portion of the SCCAB was designated as an attainment area for the State 1-hour ozone standard (0.09 ppm). However, in 2006, attainment designations became based on the 8-hour State ozone standard (0.070~~07~~ ppm) and the San Luis Obispo portion of the SCCAB was considered a non-attainment area. The area is also designated a non-attainment area for suspended particulate matter less than 10 microns in diameter ($PM_{10}$). Both of these pollutants are measured at San Luis Obispo monitoring station. The county (primarily the Paso Robles station) typically exceeds the State ozone (O3) standard at least once per year. The San Luis Obispo station, however, has not recorded a violation of the State 1-hour ozone standard since April 8, 1989.

Air quality in San Luis Obispo County is currently monitored at eight public agency and private sector monitoring stations located throughout the County. The nearest station is located

in Grover Beach approximately three miles south of the project site. However, the air quality monitored at the South Higuera Street station in the City of San Luis Obispo is more representative of the project site because the location is more similar than Grover Beach (i.e., inland valley with less cloud cover and higher temperatures). The Higuera Street station is located approximately six miles north of the project site. This station monitors ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and $PM_{10}$ levels. However, monitoring began in 2005, and 2004 data is from the Marsh Street station in San Luis Obispo. Table 5.2~~1~~-2 presents the maximum pollutant concentrations that were recorded at this station from 2004 through 2006.

High ozone levels in San Luis Obispo County have occasionally been traced to air pollutants transported from other air basins, such as the South Coast Air Basin, the San Francisco Bay Area, and the San Joaquin Valley. The frequency with which long-range transport of pollutants affects local air quality has not been definitively established. However, most exceedances of the State ozone standard measured in the County are the result of local emissions and adverse meteorology.

#### 5.2.1.6 Air Quality Management

The California Clean Air Act (CCAA), adopted in 1988, requires all air pollution control districts and air quality management districts in the state to adopt and enforce regulations to achieve and maintain air quality that is within the State air quality standards. San Luis Obispo County has been declared a "moderate" nonattainment area for the State ozone standard. The County did not meet the December 31, 1997 deadline to attain the State 1-hour ozone standard; therefore, should have been reclassified as a “serious” nonattainment area. However, the ARB determined that a change in classification would not result in a more expeditious attainment of the standard. The County is also considered a nonattainment area for the State $PM_{10}$ standard.

**Table 5.2-2. Summary of Air Quality Standard Exceedances**

| Year | Marsh St. 2004 | Higuera St. 2005 | Higuera St. 2006 |
|---|---|---|---|
| **Ozone 1-hour (ppm)** | | | |
| Worst Hour | 0.073 | 0.072 | 0.070 |
| Number of State Exceedances (Days > 0.09 ppm) | 0 | 0 | 0 |
| **Ozone 8-hour (ppm)** | | | |
| Worst 8-hour Period | 0.070 | 0.063 | 0.059 |
| Number of State Exceedances (Periods > 0.08 ppm) | 0 | 0 | 0 |
| **Carbon Monoxide (ppm)** | | | |
| Worst 8-Hour Period | 1.49 | 0.071 | 0.78 |
| Number of State Exceedances (Hours>20 ppm) | 0 | 0 | 0 |
| Number of State Exceedances (8 hours>9 ppm) | 0 | 0 | 0 |

**Table 5.2-2. (Continued)**

| Year | Marsh St. 2004 | Higuera St. 2005 | Higuera St. 2006 |
|---|---|---|---|
| **$PM_{2.5}$ (micrograms/cubic meter)** | | | |
| Worst Sample | 19.4 | 11.4 | 24.2 |
| Number of Federal Exceedances (Samples>65 ug/m3) | 0 | 0 | 0 |
| **$PM_{10}$ (micrograms/cubic meter)** | | | |
| Worst Sample | 35.0 | 32.0 | 72.0 |
| Number of State Exceedances (Samples>50) | 0 | 0 | 1 |

Source: California Air Resources Board (www.arb.ca.gov)

In response to the requirements of the CCAA, the San Luis Obispo County APCD prepared the 1991 Clean Air Plan (CAP) to provide a framework for the attainment of State air quality standards by the earliest practicable date. The CAP is a comprehensive planning document intended to facilitate attainment and maintenance of the State ozone standard. The 1995 CAP was developed as a comprehensive update to the 1991 CAP and was expected to bring the County into attainment of the State ozone standard by the end of 1997.

The 1995 CAP described the pollutants that affect County air quality, the sources of those pollutants, and future year emissions that are anticipated under current growth trends. Based on this information, the 1995 CAP also provides a control strategy for reducing emissions of ozone precursors. Included in the 1995 CAP are a number of land use and circulation management policies and programs that have already been implemented to reduce vehicular air emissions. Additional measures recommended for adoption include trip reduction programs and telecommuting.

A second update to the 1991 CAP was developed in 1998, as a continuation of the 1995 CAP and proposes no new control measures for adoption. The 1998 CAP was expected to bring the County into attainment with the State 1-hour ozone standard by 2003.

The CAP was revised again in 2001, but did not include any new emissions control measures. However, emissions of ROG and NOx are expected to decline through the year 2015, and attainment of the State ozone standard should occur in the near term. In January 2004, the San Luis Obispo County portion of the SCCAB was designated as an attainment area for the State 1-hour ozone standard (0.09 ppm). However, in 2006, attainment designations became based on the 8-hour State ozone standard (0.0708 ppm) and the San Luis Obispo portion of the SCCAB was considered a non-attainment area. Maximum concentrations of other criteria pollutants are currently within Federal and State standards.

### 5.2.1.7 Global Climate Change

Global climate change (GCC) is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Although the issue of GCC is a widely accepted theory, the extent of the change from anthropogenic (human activity related) sources remains in debate.

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG), analogous to the way in which a greenhouse retains heat. Common GHG include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. GHG are emitted by both natural processes and human activities. The accumulation of GHG in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHG, the earth's surface would be about 34 degrees Centigrade (°C) cooler (CAT 2006). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG in California. GHG as defined under AB 32 include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the ARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. On or before June 30, 2007, ARB is required to publish a list of discrete early action greenhouse gas emission reduction measures that can be implemented by 2010.

The ARB, the California Environmental Protection Agency, and other governmental agencies with jurisdiction have not yet developed guidelines on how to prepare a CEQA impact assessment for a project's Greenhouse gas (GHG) contribution to GCC. The State Legislature enacted and the Governor signed Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, which charged ARB to develop regulations on how the state would address GCC.

At this time, CEQA does not provide any regulatory guidance on how to address potential impacts of global climate change, and AB32 defers CEQA consideration of GHG as a subsequent phase of this legislation. AB32 also directs the ARB as the agency to determine appropriate measures to mitigate for GHG, which may or may not include measures directed at new land use development subject to CEQA. At this time, further analysis of this project's impacts is considered speculative given that there is no empirical evidence available at the present to evaluate this issue further under CEQA for individual or cumulative impacts. While project impacts on GCC are not considered significant, mitigation measures have been included per recommendations from the APCD to address both short-term and long-term air quality impacts (see Sections 5.3.1.2 and 5.3.1.3). Using emissions factors from "California's Greenhouse Gas Inventory" and EMFAC2007, GHG emissions were estimated and included in Table 5.2-3 for informational purposes. GHG emissions have not been added to the impact

analysis as they do not have adopted CEQA impact thresholds. For detailed GHG emissions per specific piece of equipment, refer to Appendix D.

**Table 5.2-3. GHG Emissions Inventory**

| GHG | Lbs./day | Tons/Quarter | Total Tons |
|---|---|---|---|
| CO2 | 16,818.3 | 551.9 | 1513.7 |
| CH4 (methane) | 0.9 | 0.02135 | 0.0854 |
| N2O (Nitrous oxide) | 0.1235 | 0.0029 | 0.0115 |

Source: EMFAC2007 and California 's Greenhouse Gas Inventory

### 5.2.1.8 Existing Facilities

PXP currently operates approximately 130 production wells, 40 steam injections wells, an oil dehydrations plant, gas processing plant, produced water disposal and softening plant, a casing vent recovery flare, two casing vapor recovery compressors, two truck loading racks, four 2,000 barrel storage tanks, one Co-Generation plant, and four steam generators.

Based on the 2005 emission inventory prepared for the APCD, these facilities emit 15.3 tons per year NOx and 10.8 tons per year ROG. For the year 2006, annual compliance testing of PXP's gas turbine cogeneration plant reports 2.4 pounds per day NOx and 3.6 pounds per day ROG emissions. This facility produces 1.4 megawatts of electricity and 950 barrels of steam. The gas turbine is fired on purchased natural gas and utilizes Xonon catalytic combustor to minimize NOx emissions (PXP, 2007).

### 5.2.1.9 Proposed Facilities

The proposed project would include new air strippers that would generate operational emissions for the life of the proposed project (see Impacts AQ-5 and AQ-6). These proposed facilities are discussed in more detail in Chapter 3.0 – Project Description.

### 5.3.1 Impact Analysis

### 5.3.1.1 Thresholds of Significance

Significance thresholds have been developed by the San Luis Obispo County APCD and contained within the *CEQA Air Quality Handbook* (San Luis Obispo County APCD, 2003). Specifically, project emissions are considered potentially significant impacts if any of the following thresholds are exceeded:

1. Operational Impacts:

| | |
|---|---|
| Reactive Organic Gases (ROG), $NO_x$, $SO_2$, $PM_{10}$ | 10 lbs/day |
| CO | 550 lbs/day |



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The APCD considers impacts significant and requires more stringent environmental review for projects exceeding 25 lbs/day of ROG, $NO_x$, $SO_2$ and $PM_{10}$ emissions, or 550 lbs/day CO emissions.

2. Construction Impacts:

| | |
|---|---|
| ROG and $NO_x$ | 185 lbs/day or 2.5 tons/quarter |
| $PM_{10}$ | 2.5 tons/quarter |

The APCD requires Best Available Control Technology (BACT) for construction equipment for projects with ROG or NOx emissions between 2.5 and 6.0 tons per quarter and requires BACT plus further mitigation for projects with emissions exceeding 6.0 tons per quarter.

3. Consistency:

Large projects must be found to be consistent with the District's CAP. The APCD notes that a consistency analysis is required for the following types of projects: general plan updates and amendments, specific plans, area plans, large residential subdivisions and large commercial/industrial developments. The proposed project is not one of the types listed; therefore, a CAP consistency analysis is not required.

4. Health Risk:

The APCD has established health risk threshold values under the Air Toxics "Hot Spots" Information and Assessment Act. These values trigger community notification and a risk reduction plan.

- Cancer Risk: 10 in a million lifetime cancer risk (continual 70 year exposure);
- Non-Cancer Acute Hazard: acute hazard index greater than or equal to 1.0 (sum of acute hazard hourly index of each pollutant with similar adverse health effects); and
- Non-Cancer Chronic Hazard: chronic hazard index greater than or equal to 1.0 (sum of chronic hazard annual index of each pollutant with similar adverse health effects).

5. Odors:

APCD Rule 402 states "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." Violation of Rule 402 is considered a significant impact.

#### 5.3.1.2 Short-Term Impacts

**Impact AQ-1**: Construction activity would generate air emissions that may adversely impact local and regional air quality.

**Discussion**: The emissions of construction equipment and vehicles would be short-term and consist of fugitive dust and exhaust emissions. A worst-case peak day and peak quarter construction emissions inventory was prepared for comparison to the thresholds of significance (see Table 5.2-3 and Appendix D).

Construction would generally consist of building pad grading, and installation of storage/chemical tanks, air strippers, and other appurtenances. The construction period is expected to last approximately 3 quarters, or 180 days, with 30 work days for site preparation and 150 work days of construction.

Construction equipment specifications were obtained from PXP and incorporated into the model along with existing emissions factors (see Appendix D). Several assumptions were made for the air model to estimate emissions. Because emissions factors for several pieces of equipment were not available, substitutes were obtained by using factors from similar horsepower-rated equipment. Additionally, several load factors were based on averages from composite load factors taken from the Median Life, Annual Activity, and Load-Factor Values for Nonroad Emissions Modeling Report (EPA, 2004). See Appendix D, for the air modeling emissions results per piece of equipment.

Table 5.2-~~43~~ summarizes total emissions per day and per quarter, based on the quantity of each piece of equipment to be used during operation. Emissions estimates presented in Table 5.2-~~43~~ represent a worst-case scenario without mitigation (i.e., emissions reduction factors).

In summary, construction emissions would exceed the APCD's daily and quarterly significance thresholds for NOx and is considered a significant impact to regional air quality (see Table 5.2-~~43~~). As such, mitigation for NOx and $PM_{10}$ for the Phase IV EIR would be applied to the proposed project (see Mitigation Measure AQ-1(A)). A variety of mitigation measures have been included, which would quantifiably reduce emissions, depending on which measures are implemented. Additionally, standard mitigation for the control of fugitive dust (i.e., $PM_{10}$) would be required (Mitigation Measure AQ-1(B)).

**Table 5.2-~~43~~. Construction Emissions Estimates**

| Equipment | Quantity | Pounds per day | | | ton/qtr. | | |
|---|---|---|---|---|---|---|---|
| | | NOx | ROG | $PM_{10}$ | NOx | ROG | $PM_{10}$ |
| Motor grader | 1 | 13.5 | 1.9 | 0.6 | 0.4 | 0.1 | 0.0 |
| Backhoe | 2 | 13 | 1.2 | 0.8 | 0.4 | 0.0 | 0.0 |
| Hydrocrane F-750 | 4 | 41.2 | 5.2 | 2.8 | 1.4 | 0.2 | 0.1 |
| Manlift 40LF | 4 | 45.6 | 4 | 2 | 1.5 | 0.1 | 0.1 |
| 28-ton hydrocrane RT | 1 | 10.3 | 0.9 | 0.7 | 0.3 | 0.0 | 0.0 |
| 100-ton Hydrocrane | 1 | 11.1 | 1 | 0.7 | 0.4 | 0.0 | 0.0 |
| 210-Ton Hydrocrane | 1 | 11.5 | 1 | 0.7 | 0.4 | 0.0 | 0.0 |
| D9 Dozer | 2 | 47.6 | 4.6 | 11.4 | 1.6 | 0.2 | 0.4 |

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**Table 5.2-4. (Continued)**

| Equipment | Quantity | Pounds per day | | | ton/qtr. | | |
|---|---|---|---|---|---|---|---|
| | | NOx | ROG | $PM_{10}$ | NOx | ROG | $PM_{10}$ |
| Concrete Mixer Truck | 3 | 17.4 | 1.8 | 4.2 | 0.6 | 0.1 | 0.1 |
| 980 Loader | 1 | 5.7 | 0.5 | 0.4 | 0.2 | 0.0 | 0.0 |
| Compactor 54" drum | 1 | 5.4 | 0.5 | 0.4 | 0.2 | 0.0 | 0.0 |
| Air Compressor 185 | 2 | 12.4 | 1.4 | 0.6 | 0.4 | 0.0 | 0.0 |
| Welding Rig | 10 | 40 | 3 | 2 | 1.3 | 0.1 | 0.1 |
| Welding Machine | 10 | 36 | 4 | 2 | 1.2 | 0.1 | 0.1 |
| Onroad vehicles | 23 | 0.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Totals** | | **311.3** | **31.2** | **29.3** | **10.3** | **0.9** | **0.9** |

1 Total number of construction days, including site preparation, will last approximately 180 work days (i.e., approximately 3~~2~~ quarters).

2 Onroad vehicles include 23 vehicles operating at the same time at worst-case scenario at an overall average speed of ~~40~~ 35 miles per hour. Vehicles include 15-passenger van, ¾-ton pickup and 1-ton utility truck. See Appendix ~~12.2~~D for tabular data.

3 "0.0" represents values rounded up to the nearest decimal point and does not indicated a level of absolute zero

4 Emissions estimates represent *worst-case* scenario without mitigation.

Source: EPA 1991, 2004

**Impact Category: Class**: 2

**Threshold of Significance:** 2, 3

**Mitigation Measure AQ-1:**

A. Equipment Emission Control Measures. According to Rule 402~~204~~ of the APCD Handbook of Rules and Regulations, an Authority to Construct permit shall require the use of Best Available Control Technology (BACT) where emissions of subject air contaminants would be 25 pounds~~tons~~ per day~~year~~ or more (which is applicable to NOx). Prior to construction, a Nitrogen Oxide Emissions Reduction and Monitoring Plan shall be developed using the previously implemented Monitoring Plan for the Phase IV EIR, approved by the County and fully implemented. The Plan shall specify the emissions control measures to be implemented on each emission source, the expected reduction for each criteria pollutant, the period the emissions control measures are to be in place, and a quarterly summary of the emissions reductions. The summary shall include sufficient information for the APCD to verify the emissions reductions have occurred. Potential emission reduction measures shall include, but not be limited to, a combination of the following:

- All mobile construction equipment shall use engines certified by the EPA and ARB to meet Tier 2 emission standards as listed in Title 40 Part 89 of the Code of Federal Regulations and employ Currently Verified Technologies per the ARB;



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- All portable equipment shall be registered under the Statewide Portable Equipment Registration Program and implement all emissions and reporting requirements (if a piece of equipment is 50 horsepower or greater, and is not registered under the ARB state program, it will need an APCD permit);
- Installation of diesel reduction catalyst/catalyzed diesel particulate filter system (25 to 40 percent NOx reduction); and,
- Use of PuriNOx fuel by Lubrizol (15 percent NOx reduction).

B. Dust Control Measures. Dust generated by construction activities shall be kept to a minimum by full implementation of the following measures.

- During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease;
- During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas in the morning and after work is completed for the day. Watering frequency may need to be increased~~and~~ whenever wind exceeds 15 miles per hour;
- Stockpiled earth material shall be sprayed or covered as needed to minimize dust generation;
- During construction, the amount of disturbed area shall be minimized, and onsite vehicle speeds should be reduced to 15 mph or less;
- Consistent with the County Land Use Ordinance and SWPPP, all e~~E~~xposed ground areas that are planned to be reworked at dates more than one month after initial grading during the rainy season (i.e., Oct. 15 to April 15) shall be sown with a fast-germinating native grass seed and watered until vegetation is established;
- After clearing, grading, earth moving, or excavation is completed, the entire area of disturbed soil shall be treated immediately by watering or revegetating or spreading soil binders to minimize dust generation until the area is paved or otherwise compacted so that dust generation is minimized;
- Grading and scraping operations shall be suspended when wind speeds exceed 20 mph (one hour average);
- Rumble pads (minor road obstructions designed to dislodge accumulated earth material from trucks) with spray washers shall be installed and maintained at all construction entrances; ~~and,~~
- All roadways associated with construction activities ~~should be paved as efficiently as possible.~~ shall be paved or utilize some other technique to control dust (i.e. water or APCD-approved soil stabilizer); and,

- The contractor or builder shall designate a person or person to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the APCD prior to land use clearance for map recordation and finished grading of the area.

C. ~~Emissions Offsets~~CEQA Off-site Mitigation. Project emissions remaining following implementation of the above mitigation measures shall be offset through contribution to an off-site mitigation fund. The fund is managed by the APCD and used to finance regional emission reduction projects such as bikeways, vehicle scrapping programs, diesel bus conversions, agricultural engine replacements and similar activities. Therefore, project emissions would be offset on a regional basis through PXP-funded off-site projects that would result in emissions reductions. Based on past experience, the APCD has determined that $8,500 is required per ton NOx reduced. These funds would be used by the APCD to purchase clean-burning engines and other equipment/facilities that would result in a decrease in emissions in the County. The financial contribution shall be based on offsetting excess emissions (greater than 2.5 tons NOx per quarter) at $8,500 per ton.

**Residual Impacts**

Impact Category = Class 3. NOx and fugitive dust emissions can feasibly be reduced below the threshold of significance. As such, impacts are significant, but mitigable.

**Impact AQ-2:** Diesel fuel combustion associated with project construction activity would generate emissions of toxic air contaminants (TACs).

**Discussion:** The combustion of diesel fuel in truck engines (as well as other internal combustion engines) produces exhaust containing a number of compounds that have been identified as hazardous air pollutants by EPA and TACs by the ARB. PM from diesel exhaust has recently been identified as a TAC, which has prompted ARB to develop a Final Risk Reduction Plan (released October 2000) for exposure to diesel PM. Based on ARB Resolution 00-30, full implementation of emission reduction measures recommended in the Final Risk Reduction Plan would result in a 75 percent reduction in the diesel PM Statewide inventory and the associated cancer risk by 2010, and an 85 percent reduction by 2020 in the diesel PM inventory and potential cancer risk.

The emissions of construction equipment and vehicles would be short-term, lasting only for the duration of the water reclamation facility construction phase. Diesel PM emissions would be up to 29.3 pounds per day ($PM_{10}$ in Table 5.2-3 less fugitive dust). These emissions would be much less than the APCD's 185 pounds per day threshold. Therefore, construction-related PM emissions specific to diesel engines are considered a less than significant impact.

**Impact Category:** Class 3



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**Threshold of Significance:** 2

**Mitigation Measures:** None required.

**Impact AQ-3**: Fugitive dust generated by construction or relocation/demolition activity may contain asbestos and/or lead and result in exposure of the public to theseis TACs.

**Discussion**: As discussed in the Phase IV EIR, the project site is located within the Pismo Formation, a sedimentary geologic unit, which is not expected to include ultramafic or asbestos-containing materials. According to the County Geologist, the potential for encountering asbestos-containing materials is very low. As required by the APCD, contingency measures (see Mitigation Measure AQ-3) have been included to address issues regarding relocation of existing pipelines and/or demolition activities, in the event they are necessary.

**Impact Category:** Class 23

**Threshold of Significance:** 4

**Mitigation Measures: None required.**

AQ-3A. In the event utility pipelines are scheduled for removal or relocation, or building(s) are removed or renovated, the project shall be subject to various regulatory jurisdictions, including the requirements stipulated in the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M – asbestos NESHAP). These requirements include, but are not limited to: 1) notification requirements to the District, 2) asbestos survey conducted by a Certified Asbestos Inspector, and, 3) applicable removal and disposal requirements of identified ACM.

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AQ-3B. In the event demolition activities are required as part of project construction, approval of a lead work plan shall be prepared and submitted to by the APCD for review and approval shall required and must be submitted ten days prior to the start of demolition. Depending on the lead-removal method, an APCD permit may be required. Proof of APCD approval and/or authorization shall be submitted to the County prior to start of demolition.

### 5.3.1.3 Long-Term Impacts

**Impact AQ-4**: Operation of the proposed water reclamation facility would increase the number of heavy truck trips to and from the proposed project site, resulting in increased emissions

**Discussion:** Based on a 25-ton per truck hauling and delivery capacity, liquid chemical deliveries are anticipated at two per week, plus one to two truck trips per week for solid chemical deliveries and three to four truck trips per week to haul waste to a Class II disposal site; therefore, a total of eight heavy-duty truck trips would be added to local

roadways during project operations. Operational emissions thresholds for ROG (10 lbs/day) and CO (550 lbs/day) would be applicable. The addition of eight heavy-duty truck trips per week (assuming diesel fuel) would produce emissions of ROG and CO well below operational emission thresholds. Impacts would be less than significant.

**Impact Category:** Class 3

**Threshold of Significance:** 1

**Mitigation Measures:** None required.

**Impact AQ-5**: Operation of the proposed water treatment facility would result in emissions of contaminants into the atmosphere which may result in a health risk to local residents.

**Discussion**: A facility-wide Health Risk Assessment (HRA) was recently completed and included the TAC emissions from the proposed water treatment plant. TAC emissions considered included existing and proposed steam generators, the gas turbine, proposed heaters and air strippers, existing gas plant emissions, existing storage tanks, existing loading racks and fugitive hydrocarbons. The HRA assumes that all TACs contained in water to be treated is released to the atmosphere. The HRA was completed using Hotspots Analysis and Reporting Program (HARP v. 1.3) developed by the ARB. Cancer and non-cancer (acute and chronic) health impacts were estimated using guidelines developed by the Office of Environmental Health Hazard Assessment. Ground level pollutant concentrations and resulting health risk was calculated for 13 residences and a school in the project area. Cancer and non-cancer health risks at the three most impacted receptors are provided in Table 5.2-5. The significance threshold for health risk is a cancer risk 10 per million, and hazard index of 1.0. The results of the HRA indicate that health risk associated with PXP operations, including the proposed water treatment facility would be less than significant. In addition, the facility would not be subject to BACT under APCD Rule 219 as the cancer health risk would be less than 1 per million and a hazard index less than 0.1.

**Table 5.2-5. Summary of the Health Risk Assessment**

| Receptor | Cancer Risk (per million) | Chronic Hazard Index | Acute Hazard Index |
|---|---|---|---|
| Residence 1 | 0.39 | 0.031 | 0.073 |
| Residence 2 | 0.70 | 0.042 | 0.066 |
| Residence 3 | 0.80 | 0.036 | 0.048 |

~~**Impact AQ-5**: Operation of the proposed water treatment facility would result in emissions of ROGs, ammonia, and other TACs from air strippers.~~

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**Discussion:** A screening-level Health Risk Assessment (HRA) was conducted on the projected emissions from the proposed air stripper exhaust proposed as part of the project. Two different scenarios, one assuming six stacks and the other assuming one stack, were performed; however, the volume of water introduced into the stacks is the same regardless of number of stacks. Using the worst-case assumption of 24 hours a day, 7 days a week exhaust, it was determined that risks for cancers and Chronic and Acute Health Indexes were below significance thresholds. Please refer to Appendix D, for detailed HRA results and emissions calculations.

The following table summarizes the constituent emissions analyzed in the screening-level HRA, with the volume of water analyzed being emitted from three stacks. It assumes that air strippers would be running for 24 hours per day at worst-case.

**Table 5.2-4. Air Stripper Emissions**

| Pollutant | Lbs/day |
|---|---|
| Acetone* | 0.12 |
| Ammonia* | 139.92 |
| Methyl Ethyl Ketone | 0.06 |
| Benzene | 0.00005 |
| Xylene | 0.0001 |
| Chlorobenzene | 0.00007 |
| Ethylbenzene | 0.00002 |
| Napthalene | 0.00003 |
| Toluene | 0.00002 |
| **Totals** | **ROG = 0.06** |
| | **ALL = 140.1** |

* Acetone and Ammonia are not classified as ROGs.

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CEQA thresholds for ROGs would not be exceeded; however, APCD Rule 219 would be applicable to the proposed project. The purpose of Rule 219 is to provide a mechanism for evaluating potential toxic impacts of TACs from new, modified, and relocated sources pursuant to devices or processes where an APCD permit is required. The proposed project would need to meet the requirements of Rule 219 in order to obtain an Authority to Construct/Permit to Operate (ACPO) from the APCD. This would be accomplished with implementation of Mitigation Measure AQ-5(A).

Per APCD Rule 429, ammonia emissions from control devices installed to meet the requirements of this Rule shall not exceed 10 ppm based on a one (1) clock hour average at three percent (3%) oxygen on a dry basis. Although air stripper emissions were below applicable thresholds, the ACPD will require that these emissions be offset to the extent feasible via Mitigation Measure AQ-5(B).

**Impact Category:** Class 3~~2~~

**Threshold of Significance:** ~~1,~~ 4

**Mitigation Measures:** None required.

~~**Mitigation Measure AQ-5:**~~

~~A. As part of permitting for the proposed air strippers (New Source Review), the APCD would require PXP to include provisions for meeting the permit requirements concerning sampling and testing protocol for air stripper emissions per Rule 204;~~

~~B. PXP shall apply Toxics BACTs such as carbon canisters or toxics scrubbers, depending on what is reasonably available at the time of permit application. As part of the permit application, PXP shall state what they intend to implement in terms of BACTs to the satisfaction of the APCD.~~

~~**Residual Impacts:**~~

~~Impact Category = Class 3. Mitigation Measure AQ-5 would reduce impacts resulting from air stripper emissions to a less than significant level.~~

**Impact AQ-6:** Due to the high levels of ammonia emissions (see Table 5.2-4) from the air strippers, the impact of related odors is considered an air quality issue.

**Discussion:** Per APCD Rule 402, which deals with nuisance, ammonia odors could potentially create a significant impact due to the high levels of emissions predicted by the screening-level HRA. Thus, the air strippers' emissions must be incorporated into the Odor Monitoring and Complaint Response Plan incorporated as part of the Phase IV EIR. This plan included various contingency measures, programs and procedures designed to address detectable odors and chronic odor complaints. If odors associated with ammonia become a monitoring issue, BACT measures such as carbon canisters or scrubbers may be implemented to the satisfaction of the APCD.

**Impact Category:** Class 2

**Threshold of Significance:** 5

**Mitigation Measure AQ-6:** PXP shall incorporate the issue of ammonia odors into the existing Plan referenced above.

**Residual Impacts**

Impact Category = Class 3. Odor control mitigation for ammonia would reduce impacts to a less than significant level.

### 5.3.1.4 Cumulative Impacts

A cumulative analysis of operational emissions includes the steam generator peak day emissions estimated for the Phase IV EIR, and the screening-level HRA emissions estimates. NOx and CO would not be applicable to the cumulative impact, as these pollutants would not be released by the air strippers. However, the remaining constituents analyzed by the previous HRA, including ROGs, would result in cumulative emissions (at Phase IV build-out) as summarized in Table 5.2-5. "All other ROGs" includes those estimated in Table 5.4-4 of the Phase IV EIR, plus the constituents listed in Table 5.4-4 of this SEIR which are not listed below. All but two of the constituents listed in Table 5.2-5 are considered ROGs; those not classified as ROGs include acetone and ammonia.

**Table 5.2-65. Operational Cumulative Emissions Estimates**

| Pollutant | lbs./yearday |
|---|---|
| Benzene | 6.610.00765 |
| Naphthalene | 32.060.02203 |
| Toluene | 6.090.01202 |
| All other ROGs | 8,748.5819.86 |
| **Total** | **8,793.34 (1.1 tons/qtr)19.9** |

Ongoing cumulative projects in the project area include the Tentative Tract Map no. 2388 (Spanish Springs) and Tract 2554 (PVP Investments), which would result in the development of low density residential land uses, a hotel, golf course and vineyards. These land uses would result in cumulative air emissions associated with construction equipment, motor vehicle use (visitors and residents), agricultural equipment use, golf course maintenance equipment use and space heating. These air emissions would likely exacerbate the air quality impacts of the proposed project. However, these cumulative impacts would not alter the significance of air quality impacts of the project. Construction and operational emissions from cumulative projects in Price Canyon would be subject to similar mitigation measures as for the proposed project, and would reduce emissions to the extent feasible; therefore, impacts are considered less than significant.